

Recovery Plan Action Status

Plan Name: Cumberland Monkeyface Pearly Mussel

Plan Status: Final

Plan Date: 09-Jul-84

Lead Agency: USFWS

Lead Office: Asheville Ecological Services Field Office

(258-3939)

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	1	1.1	Continue to utilize existing legislation and regulations to protect species and habitat	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, U.S. Fish and Wildlife Service, Division of Law Enforcement, Virginia Commission of Game and Inland Fisheries	Other: Administration, Other: Information and Education, Other: Law Enforcement, Other: Regulations	Internal Technical Assistance, Species Expert	1. See general categories for Implementation Schedules. 2. Other agencies' responsibility would be of a cooperative nature or projects funded under a contract or grant program. In some cases contracts could be let to universities or private enterprises. 3. Note: Task costs have not been estimated for this plan. This species exists with other listed mussels in the same river systems. Thus, a task aimed at this species will benefit others. Rather than attempting to apportion the costs to each species, recovery tasks will be estimated at a later date when the plans are combined on a watershed basis for implementation.

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Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	3	1.2.1	Conduct surveys for the species	Partially Complete	FY 2008	FY 2010	U.S. Fish and Wildlife Service, Ecological Services Division	Research: Population Assessment	Contract, Graduate Student	This information refers only to the Powell River population in Virginia and Tennessee. A M.S. graduate student, Matt Johnson, of Virginia Tech conducted the population assessment. The project is completed and a report has been submitted to USFWS.
Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	3	1.2.1	Determine species' present distribution and status	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, Virginia Commission of Game and Inland Fisheries	Research: Habitat Status, Research: Population Surveys	Contract, Graduate Student, Internal Field Assistance, Species Expert	At the time of the recovery plan (1984), three populations were known. For the past ~20 years, the species has been restricted to the Duck River, TN, and Powell River, VA/TN. Between 2008 and 2009, a VPI graduate student conducted a population status assessment in Powell River, VA and TN. The Duck River population has not been assessed since the early 2000s.
Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	2	1.2.2	Characterize habitat and determine essential elements	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Virginia Commission of Game and Inland Fisheries	Research: Competition, Research: Disease, Research: Habitat Requirements, Research: Migration, Research: Predation	Contract, Graduate Student, Internal Field Assistance, Species Expert	

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Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	2	1.2.3 & 1.2.4	Determine the extent of preferred habitat and present information in a manner which identifies areas in need of special attention	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, Virginia Commission of Game and Inland Fisheries	Management: Habitat Maintenance and Manipulation, Other: Law Enforcement, Research: Habitat Requirements	Contract, Graduate Student, Internal Field Assistance, Species Expert	
Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	1	1.3.1 - 1.3.3	Determine present and foreseeable threats to species	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, Virginia Commission of Game and Inland Fisheries	Research: Environmental Contaminants, Research: Other Information	Contract, Graduate Student, Internal Field Assistance, Species Expert	

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Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	2	1.3.4	Determine measures needed to minimize threats and implement where needed to meet recovery	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, TN and VA Nature Conservancy, Virginia Commission of Game and Inland Fisheries	Management: Habitat Maintenance and Manipulation, Management: Other	Contract, Graduate Student, Internal Field Assistance, Species Expert	Some studies on the effects of coal mining have been conducted in the Powell River. New money is anticipated to expand our knowledge of coal fines on mussels.
Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	2	1.4.1-1.4.4	Solicit help in protecting species and essential habitat	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, TN and VA Nature Conservancy, Virginia Commission of Game and Inland Fisheries	Other: Administration, Other: Information and Education	Contract, Graduate Student, Internal Technical Assistance, Species Expert	

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Cumberland monkeyface (pearly mussel) (Quadrula intermedia)	2	1.4.5	Develop and utilize information and education program (slide/tape shows, brochures, etc.) for local distribution	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, TN and VA Nature Conservancy, Virginia Commission of Game and Inland Fisheries	Other: Information and Education	Contract, Graduate Student, Internal Technical Assistance, Species Expert, Volunteer	Task duration: 1 yr for devel. Continued implementation
Cumberland monkeyface (pearly mussel) (Quadrula intermedia)	2	1.5	Investigate the use of Scenic River Status, mussel sanctuaries, land acquisitions, and/or other means to protect the habitat	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, TN and VA Nature Conservancy, Virginia Commission of Game and Inland Fisheries	Acquisition: Easement, Acquisition: Exchange, Acquisition: Fee Title, Acquisition: Lease, Acquisition: Management Agreement, Acquisition: Other, Acquisition: Withdrawal, Management: Other, Other: Administration, Other: Regulations	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert	

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Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	3	2.1-2.2	Survey rivers within species' historic range to determine availability of suitable transplant sites	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, Virginia Commission of Game and Inland Fisheries	Research: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Species Expert	Six rivers have been identified as potential reintroduction sites for this species. This list may change depending on changes in habitat availability and threats.
Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	3	2.3	Determine best method of establishing new populations	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, Virginia Commission of Game and Inland Fisheries	Research: Propagation, Research: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Species Expert	Task 2.1-2.3 may not be required if other populations are found in task 1.2.1
Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	3	2.4	Reestablish populations within historic range as needed to meet recovery	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, Virginia Commission of Game and Inland Fisheries	Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Species Expert	Although this species is included in a 17-species NEP on the Tennessee River, AL, it has not been reintroduced there pending further developments in ongoing propagation technology.

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Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	3	2.5	Implement same protective measures for these reestablished populations as for known populations	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, TN and VA Nature Conservancy, Virginia Commission of Game and Inland Fisheries	Management: Habitat Maintenance and Manipulation, Management: Other, Research: Environmental Contaminants, Research: Other Information	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert	
Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	1	3	Conduct life history studies on a need-to-know basis	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, Virginia Commission of Game and Inland Fisheries	Research: Competition, Research: Demographic Studies, Research: Disease, Research: Habitat Requirements, Research: Migration, Research: Other Information, Research: Predation, Research: Propagation	Contract, Graduate Student, Internal Field Assistance, Species Expert	Some host fish work has been conducted. Being a short-term brooder, it is difficult to propagate due to having a short spawning season and gravid females readily abort glochidia when mis-handled. A new project should shed more light on developing propagation technology for this species.

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Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	3	4	Determine the number of individuals required to maintain a viable population	Not Started			U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, Virginia Commission of Game and Inland Fisheries	Research: Competition, Research: Disease, Research: Migration, Research: Predation	Contract, Graduate Student, Internal Field Assistance, Species Expert	These studies will be developed and carried out where there is a specific need for data necessary to reach recovery.
Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	3	5	Investigate the need for habitat improvement and implementation only where needed to meet recovery objective	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, Virginia Commission of Game and Inland Fisheries	Management: Habitat Maintenance and Manipulation	Contract, Graduate Student, Internal Field Assistance, Species Expert	Riparian habitat restoration work has been and continues to be conducted in the Powell and Duck Rivers. These projects serve to reduce sedimentation and nutrients to this species' habitat.
Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	2	6	Develop and implement a monitoring program	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, Virginia Commission of Game and Inland Fisheries	Research: Habitat Status, Research: Population Surveys	Contract, Graduate Student, Internal Field Assistance, Species Expert	Fixed monitoring sites for quantitative sampling have been established in the Powell River, TN/VA, since 1979 and sampled every ~5 years. Fixed monitoring sites have also been established on the Duck River, TN, and sampled once in 2003.

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Cumberland monkeyface (pearlymussel) (Quadrula intermedia)	2	7	Annual assessment of recovery program and modify where needed	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Endangered Species Division, Tennessee Valley Authority , Tennessee Wildlife Resources Agency , USFWS Regional Office 4 - Atlanta, USFWS Regional Office 5, Tennessee Heritage Program, TN and VA Nature Conservancy, Virginia Commission of Game and Inland Fisheries	Other: Administration	Internal Administrative	